Polyolefin, modified with polydimethylsiloxane (PDMS) can be used as processing aids as well as a surface modifiers for polyolefins.

PDMS is a naturally low surface energy material, which can be used to decrease friction, wetting of liquids and create a slick surface.
GRAFTING REACTION

PDMS is chemically bonded to polyolefin will avoid bloom effects, where PDMS migrates to the surface. This phenomena can make the surface tacky and contaminated.

1. REACTION MECHANISM

PDMS is partially crosslinked to olefin chain, by forming imide groups with maleic anhydride. This prevents PDMS from migrating to the surface and losing its effect.

2. SURFACE PROPERTIES

Static contact angle measurement

EBAMAH: 79±4°
+25% PDMS MB 93±2°
+50% PDMS MB: 100±4°
3. APPLICATIONS

- Can be added to almost any type of polymer
- Increase slickness of the material
- Lower friction coefficient
- Lower shear rate during processing
- Improved surface finish of extrudate

CONCLUDING REMARKS

The PDMS grafted polymer has modified surface properties:

- Can be added to almost any type of polymer
- Increase slickness of the material
- Lower friction coefficient
- Lower shear rate during processing and
- Improved surface finish of extrudate
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